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United States Nuclear Regulatory Commission
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-230
GENERIC LETTER 93-04, 90-DAY RESPONSE

Gentlemen:

Pursuant to the requirements of 10 CFR 50.54 (f), the NRC issued Generic Letter 93-04, "Rod Control System Failure and Withdrawal of Rod Control Cluster Assemblies," on June 21, 1993, addressed to all licensees with the Westinghouse Rod Control System (except Haddam Neck) for action and to all other licensees for information. This letter provides the 90-day response for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). The enclosure to this letter discusses the conclusion that HBR2 is in compliance with the licensing basis as well as describes proposed long-term enhancements.

The Generic Letter requires that, within 45 days from the date of the Generic Letter, each addressee provide an assessment of whether or not the licensing basis for each facility is still satisfied with regard to the requirements for system response to a single failure in the Rod Control System (GDC 31 as described in HBR2 Final Safety Analysis Report). If the assessment (Required Response 1.(a)) indicates that the licensing basis is not satisfied, then the licensee must describe compensatory short-term actions consistent with the guidelines contained in the Generic Letter, and within 90 days, provide a plan and schedule for long-term resolution (Required Response 1.(b) and 2). Subsequent correspondence between the Westinghouse Owners Group and the NRC resulted in schedular relief for Required Response 1.(a) (NRC Letter to Mr. Roger Newton dated July 26, 1993).

Carolina Power & Light Company's (CP&L) letter to NRC dated August 5, 1993, (RNP/93-1837) provided CP&L's 45-day response to the Generic Letter as it applies to HBR2. The response summarized the compensatory actions taken by CP&L in response to the Salem Rod Control System failure event (the second part of Required Response 1.(b)). It also provided a summary of the results of the generic safety analysis program conducted by the Westinghouse Owners Group and its applicability to HBR2.

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The attached response concludes that the licensing basis is satisfied for GDC 31 (Required Response 1.(a)) and also provides additional information for long-term clarification of this issue. Supplementary DNBR calculations by the fuel vendor (Siemens Power Corporation) in August have confirmed the safety assessment provided in the 45-day response: there is no safety significance for any asymmetric RCCA withdrawal based on three-dimensional analysis.

Questions regarding this matter may be referred to Mr. Jan Kozyra at (803) 383-1872.

Very truly yours,

Charles R. Dietz
Vice President
Robinson Nuclear Plant

SDC:lst

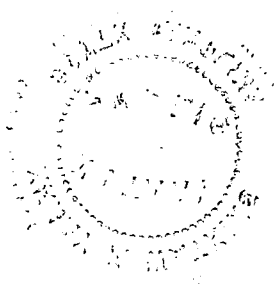
Enclosure

C. R. Dietz, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Henry F. Watkins 9/20/93
Notary (Seal)

My commission expires: 3-7-96

cc: Mr. S. D. Ebneter
Ms. B. L. Mozafari
Mr. W. L. Orders



RESPONSE TO NRC GL 93-04

Assessment of Licensing Basis Compliance

The purpose of this response is to (1) provide an assessment of whether or not the licensing basis for HBR2 is still satisfied with regard to the requirements for system response to a single failure in the Rod Control System and (2) to provide supporting discussion for this assessment in light of the information generated as a result of the Salem event (Required Response 1.(a)).

The Westinghouse Owners Group (WOG) has undertaken the following initiatives to support the response to NRC Generic Letter 93-04: conducting Rod Control System testing in the Salem training center, examining the existing Rod Control System Failure Modes and Effects Analysis (FMEA), analyzing the worst-case asymmetric RCCA withdrawal combinations with three-dimensional analytical methods, and performing an equipment survey of Westinghouse plants to determine the frequency and significance of control system circuit card failures.

After this extensive investigation, the WOG has concluded that GDC 31 continues to be met, but also recognizes that there are questions as to the interpretation of not only the intent of GDC 31 but also the appropriate definition of the specified acceptable fuel design limit as well.

Based on previous communications, the NRC has conservatively interpreted the GDC 31 fuel design limit to be the DNB design basis. The WOG believes that this is a conservative definition if applied to all events. The equipment survey conducted by the WOG demonstrated that the failure rate of card failures that could result in the movement of less than a whole group is on the order of four (4) E-8/critical reactor hours. This would indicate that the likelihood of a Salem-type event is extremely remote. With this in mind, the WOG would propose that a Condition III (or IV) specified acceptable fuel design limit would be applicable.

Based on the WOG's understanding of GDC 31, the purpose of this criterion is to ensure that the appropriate limits (commensurate with the probability of occurrence) are not violated for a "worst-case" stand-alone single failure. The test program conducted at the Salem training center demonstrated that all the rods within a given group would receive the same signals. The corrupted current orders generated by the logic cabinet failures at Salem were transmitted identically to all eight (8) RCCAs in Shutdown Bank A. The fact that only one RCCA withdrew in the plant was due to a second unrelated effect. Had all the rods in SBA responded, as predicted in the existing FMEA, all the rods would have withdrawn uniformly and have been enveloped by the existing FSAR accident analyses. In addition, existing rod motion surveillance requirements would detect the type of rod motion failure observed at Salem. Thus, the requirement that <u>one</u> single failure not result in a specified acceptable fuel design limit being exceeded, in this case the DNB design basis, would remain satisfied.

Assessment of the Safety Significance of Potential Asymmetric Rod Motion in the Rod Control System

Westinghouse has also performed a safety analysis using three-dimensional safety analysis techniques to assist the WOG in its determination of the safety significance of an uncontrolled asymmetric rod withdrawal. WCAP-13803, Revision 1 (proprietary to Westinghouse) and WCAP-13838 (Non-proprietary) documented the WOG safety analysis program and provided the core conditions at the time minimum DNBR occurs. Siemens Power Corporation (as the fuel vendor for the Robinson Nuclear Plant) used the statepoints provided in WCAP-13838 as part of a plant-specific DNB analysis. The WOG generic safety analysis, together with the Siemens plant specific application, demonstrate that DNB does not occur for a worst-case asymmetric rod withdrawal.

CP&L letter dated August 5, 1993, (RNP/93-1837) provided CP&L's 45-day response to the Generic Letter as it applies to HBR2. The response provided a summary of the results of the generic safety analysis program conducted by the Westinghouse Owners Group and its applicability to HBR2.

Long-term Enhancements

While the assessment indicates that the licensing basis is currently satisfied, the WOG believes that there are measures that can be taken by utilities to make compliance with GDC 31 more clear. Those recommended measures include a combination of Rod Control System logic cabinet changes (current order timing adjustments) and an additional plant surveillance. CP&L's 45-day response described the surveillance testing already being performed at HBR2 each refueling outage prior to startup in Engineering Surveillance Test EST-049, "Rod Drive Mechanism Operation Testing," which meets the intent of the Westinghouse recommendations.

CP&L proposes to modify the Rod Control System current order timing to prevent any uncontrolled asymmetric rod withdrawal in the event of the failure identified at Salem. The current order timing adjustments will provide a high degree of certainty that none of the rods will move if corrupted current orders are present.

CP&L will provide a schedule for implementation of the proposed long-term action at HBR2 after the successful demonstration of the timing adjustments at an operating plant and receipt of the official technical bulletin from Westinghouse. The bases for allowing this time period are (1) that existing rod motion surveillance tests provide assurance that the failures scenarios of an uncontrolled asymmetric rod withdrawal will be detected and (2) the analysis program performed and documented in WCAP-13803, Revision 1, together with the Siemens plant specific application, conclude that there was no safety significance for HBR2 for a Salem-type rod withdrawal.